

1. An apparatus for reciprocating an infant support, the apparatus comprising:
- a frame;
  - a receiving member configured to receive the infant support,
  - 5 said receiving member movable relative to said frame for reciprocation in a substantially vertical direction; and
  - a motive device coupled to said receiving member and configured to reciprocate said receiving member relative to said frame with a displacement in the range of approximately 2 inches to approximately 6
  - 10 inches at a frequency in the range of approximately 30 cycles per minute to approximately 90 cycles per minute.
2. The apparatus of claim 1, wherein said motive device is configured to reciprocate said receiving member relative to said frame with a displacement in the range of approximately 3 inches to approximately 5 inches.
3. The apparatus of claim 1, wherein said motive device is configured to reciprocate said receiving member relative to said frame with a displacement of approximately 4 inches.

4. The apparatus of claim 1, wherein said motive device is configured to reciprocate said receiving member relative to said frame at a frequency in the range of approximately 30 cycles per minute to approximately 60 cycles per minute.

5. The apparatus of claim 1, wherein said motive device is configured to reciprocate said receiving member relative to said frame at a frequency in the range of approximately 35 cycles per minute to approximately 70 cycles per minute.

6. The apparatus of claim 1, wherein said motive device is configured to reciprocate said receiving member relative to said frame at a frequency in the range of approximately 40 cycles per minute to approximately 90 cycles per minute.

7. The apparatus of claim 1, wherein said motive device includes an electric motor.

8. The apparatus of claim 7, further comprising a battery electrically coupled to said electric motor.

9. The apparatus of claim 1, wherein said motive device comprises a spring-wound mechanism.

10. The apparatus of claim 1, further comprising a counterbalance mechanism operatively coupled to said motive device, said counterbalance mechanism configured to provide a substantially uniform load on said motive device while said motive device reciprocates said receiving member.

11. The apparatus of claim 10, wherein said counterbalance mechanism comprises a biasing member operatively coupled to said motive device.

12. The apparatus of claim 10, wherein said counterbalance mechanism comprises a biasing member operatively coupled to said receiving member.

13. The apparatus of claim 10, wherein said counterbalance mechanism is adjustable to accommodate different loads on the apparatus.

14. The apparatus of claim 1, further comprising a reciprocating assembly coupled to said receiving member and configured to constrain movement of said receiving member relative to said frame such that said infant support moves in a substantially vertical direction.

15. The apparatus of claim 14, wherein said reciprocating assembly comprises a scissor mechanism coupled between said frame and said receiving member.

16. The apparatus of claim 14, wherein said motive device comprises a motor having an output shaft coupled to said receiving member by a first crank member, whereby rotation of said first crank member about said output shaft reciprocates said receiving member.

17. The apparatus of claim 16, further comprising a counterbalance mechanism operatively coupled to said motor, said counterbalance mechanism configured to provide a substantially uniform load on said motor while said motor reciprocates said receiving member.

18. The apparatus of claim 17, wherein said counterbalance mechanism comprises:

a second crank member coupled to said output shaft; and  
a tension spring having a first end coupled to said frame and a  
5 second end coupled to said second crank member.

19. The apparatus of claim 17, wherein said counterbalance mechanism comprises:

a gear train having a first gear coupled to said output shaft of said motor and a second gear driven in response to rotation of said first  
5 gear; and  
a tension spring having a first end coupled to said frame and a second end coupled to said second gear and radially offset from a center of rotation of said second gear.

20. The apparatus of claim 17, wherein said counterbalance mechanism comprises:

a bell crank having first and second crank arms, said bell crank pivotally mounted to said frame for pivotal movement of said first and  
5 second crank arms about an axis perpendicular to said vertical direction;  
and

a tension spring having a first end coupled to said first crank arm and a second end coupled to said frame;

said second crank arm of said bell crank engagable with said  
10 receiving member whereby said tension spring biases said second crank arm  
to facilitate reciprocating movement of said receiving member in said  
vertical direction.

21. The apparatus of claim 17, wherein said counterbalance mechanism comprises:

a cable and pulley system coupled between said frame and  
said reciprocating assembly; and

5 a spring having a first end coupled to said frame and a second  
end coupled to said cable and pulley system.

22. The apparatus of claim 16, further comprising:

a bell crank having first and second crank arms, said bell crank pivotally connected to said frame for pivotal movement of said first and second crank arms;

5 said first crank arm operatively coupled to said first crank member;

said second crank arm operatively coupled to said receiving member; and

wherein said output shaft of said motor extends in a direction  
10 substantially parallel to said vertical direction, such that rotation of said first crank member about said output shaft pivots said first and second crank arms of said bell crank to thereby reciprocate said receiving member.

23. An apparatus for reciprocating an infant support, the apparatus comprising:

- a frame;
- a receiving member configured to receive the infant support,
- 5 said receiving member movable relative to said frame for reciprocation in a substantially vertical direction;
- a reciprocating assembly coupled to said receiving member and configured to constrain movement of said receiving member relative to said frame such that said infant support moves in a substantially vertical
- 10 direction;
- an electric motor coupled to said receiving member and configured to reciprocate said receiving member relative to said frame with a displacement in the range of approximately 2 inches to approximately 6 inches at a frequency in the range of approximately 30 cycles per minute to
- 15 approximately 90 cycles per minute; and
- a counterbalance mechanism operatively coupled to said electric motor, said counterbalance mechanism configured to provide a substantially uniform load on said electric motor while said electric motor reciprocates said receiving member.

24. A method of soothing an infant, the method comprising:  
placing the infant on an infant support;  
reciprocating the infant support with a first substantially  
vertical motion having an amplitude in the range of approximately 2 inches  
5 to approximately 6 inches at a frequency in the range of approximately 30  
cycles per minute to approximately 90 cycles per minute.

25. The method of claim 24, further comprising counterbalancing  
the static and dynamic loads of the infant support when an infant is  
supported thereby.

26. The method of claim 24, further comprising superposing a  
second vertically reciprocating motion on the first motion, the second  
motion having an amplitude and frequency different from the first motion.

27. The method of claim 26, further comprising counterbalancing  
the static and dynamic loads of the infant support when an infant is  
supported thereby.

28. The method of claim 26, wherein said second motion is random.